

Application No. 10/501,885  
Attorney Docket No.: 042600  
Response Filed: June 1, 2007

### **REMARKS**

Claims 1-6 are pending in the present application.

#### **Claim Rejections - 35 U.S.C. § 103**

Claims 1-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over **Kajiwara** (U.S. Patent 5,256,033) in view of **Lovisetto** (EP 0 055 426). Favorable reconsideration is requested.

Kajiwara discloses a multistage centrifugal pump. Each stage has a bottom wall which projects conically or spherically radially inwardly toward the impeller by a distance corresponding to the extent to which the bottom wall is deformable under an interstage pressure difference. Each stage has a cylindrical side wall 21, flat portion 27, cylindrical portion 25, relief portion 26 and bottom wall 24. The cylindrical side wall has a projecting portion 28.

The Office Action acknowledges that Kajiwara does not disclose a relief plate having an outer circumferential end face which is held in contact with an inner surface of a cylindrical side portion of the adjacent intermediate casing and is attached to said bottom portion of the intermediate casing. (Office Action, page 3.) However, the Office Action cites Lovisetto for disclosing these features.

Lovisetto discloses a stage compartment structure for a multistage pump. The structure includes a cylindrical case 11, a partition member 12, and a recessed region 13 for forming a seat for a seal ring 14. Partition member 12 abuts against the cylindrical case 11 at a raised region 18 of the case 11. (Lovisetto, page 4; Fig. 2.)

Applicants respectfully submit that Kajiwara in view of Lovisetto does not teach or suggest

wherein said relief plate, said stage side portion, said stage flat portion, and said inner surface of said cylindrical side portion of said adjacent intermediate casing form a space in which an O-ring is fitted

as recited in claims 1 and 2.

The Office Action cites side plate 33 of Kajiwara as corresponding to a relief plate as recited in the claims. (Office Action, page 2.) Side plate 33 is attached to bottom wall 24; however, as acknowledged by the Office Action, Kajiwara does not disclose that side plate 33 is held in contact with an inner surface of the cylindrical side portion of an adjacent intermediate casing. As shown in Fig. 1 of Kajiwara, side plate 33 does not form a space with cylindrical portion 25, relief portion 26, flat portion 27 and projecting portion 28.

Moreover, Kajiwara does not disclose forming a space for fitting an O-ring. As can be seen in Fig. 1 of Kajiwara, a space is formed by cylindrical portion 25, relief portion 26, flat portion 27 and projecting portion 28. However, Kajiwara does not disclose fitting an O-ring in the space. The Office Action cites Kajiwara at col. 6, lines 15-20 for disclosing this feature. The cited passage discloses a liner ring supported by a flange which extends radially from the casing inner edge. As can be seen from Fig. 1, liner ring 30 is not fitted in a space formed by the cylindrical portion 25, relief portion 26, flat portion 27 and projecting portion 28. Therefore, Kajiwara in view of Lovisetto does not teach or suggest the elements as recited in claims 1 and 2.

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Applicants respectfully submit that Kajiwara in view of Lovisetto does not teach or suggest

wherein a relief plate having an outer circumferential end face which is held in contact with an inner surface of a cylindrical side portion of said adjacent intermediate casing is attached to said bottom portion of said intermediate casing,

as recited in claims 1 and 2.

The Office Action cites Lovisetto for disclosing this feature. (Office Action, page 3.) Specifically, the Office Action takes the position that partition member 12 in Lovisetto is a relief plate which is held in contact with an inner surface of case 11. However, partition member 12 is the bottom wall enclosing the casing of the stage. (See page 4, lines 14-29; Fig. 2.) Thus, partition member 12 corresponds with the bottom portion as recited in the claims. Since partition member 12 is the bottom portion of the stage, partition member 12 cannot be a relief plate which attaches to the bottom portion. Therefore, Kajiwara in view of Lovisetto does not teach or suggest the elements of claims 1 and 2.

Applicants respectfully submit that Kajiwara in view of Lovisetto does not teach or suggest

wherein a return vane interposed between a side plate and said relief plate is formed integrally with said relief plate

as recited in claim 2.

Kajiwara discloses that the guide vane is sandwiched and welded between side plates 33 and 34. (Col. 4, lines 33-37.) As stated in the present specification, if the return vane is formed

integrally with the relief plate, it is not necessary to weld the relief plate and the return vanes. (Specification, page 7, lines 12-18.) Since the guide vane in Kajiwara is welded between side plates 33 and 34, the guide vane is not formed integrally with side plate 33. Therefore, Kajiwara does not disclose the elements as recited in claim 2.

Applicants respectfully submit that Kajiwara in view of Lovisetto does not teach or suggest that “a height of said return vane at an outer circumferential side is larger than that at an inner circumferential side” as recited in claim 3.

The Office Action takes the position that side plate 33 is oriented at an angle  $\delta$  from the vertical axis of side plate 34. (Office Action, page 3.) However, angle  $\delta$  is the angle in which bottom wall 24 extends away from side plate 33. (Fig. 1.) Kajiwara discloses that bottom wall 24 projects at a projecting distance  $\delta$  towards the casing interior 21A. (Col. 4, lines 16-24.) As can be seen from Fig. 1 of Kajiwara, side plates 33 and 34 are parallel, forming a uniformly spaced passage 32A. Therefore, Kajiwara in view of Lovisetto does not teach or suggest the elements as recited in claim 3.

For at least the foregoing reasons claims 1-3 are patentable over the cited references, and claims 4-6 are patentable by virtue of their dependence on at least one of claims 1-3. Accordingly, withdrawal of the rejection of claims 1-6 is hereby solicited.

In view of the above remarks, Applicants submit that the claims are in condition for allowance. Applicants request such action at an early date.

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If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,  
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